

Claims

1. An electroconductive sealer/primer composition, comprising:
  - (a) a radiation curable, polymerizable compound,
  - (b) a photoinitiator blend, and
  - (c) a conductive pigment.
2. The composition of Claim 1 which further comprises:
  - (a) from about 20% to about 99% by weight, based on the total weight of the total composition, of the polymerizable compound,
  - (b) from about 0.5% to about 18% by weight, based upon the total weight of the composition, of the photoinitiator, and
  - (c) from about 0.5% to about 50% by weight, based upon the total weight of the composition.
3. The composition of Claim 1 where the polymerizable compound is acrylate functional, the acrylate functional compound being either monofunctional or polyfunctional.
4. The composition of Claim 3 wherein the acrylate functional compound is selected from the group consisting of :

monoacrylates, diacrylates, triacrylates, polyacrylates, aliphatic and aromatic urethane-modified acrylates, urethane acrylates, polyester-modified acrylates, polyester acrylates, vinyl acrylates, epoxy acrylates, epoxy modified acrylates, polyether acrylates, amine modified acrylates, acrylic polymer modified acrylates, acid functional acrylates, acid modified acrylates, silicone acrylates, silicone modified acrylates, acrylate functional cycloaliphatic resins, acrylate functional cationic resins, hybrid acrylates, thereof.

ethoxylated bisphenol A acrylates, propoxylated acrylates, ethoxylated acrylates, trifunctional acrylic esters, unsaturated cyclic diones, polyester acrylates, silica acrylates, acrylic acrylates, and mixture thereof.
5. The composition of Claim 1 wherein the radiation polymerizable compound is selected from the group consisting of unsaturated polyesters, unsaturated resins, styrene, vinyl ethers, vinyl esters and mixtures thereof.
6. The composition of Claim 4 wherein the acrylate is a mixture of monomeric polymerizable acrylates and pre-polymer acrylates.

7. The composition of Claim 6 wherein the acrylate is selected from the group consisting of:

trimethylol propane triacrylate, 1, 6-hexane diol diacrylate, epoxy acrylate, aliphatic urethane acrylate, isobornyl acrylate, tetrahydrofurfuryl acrylate, and mixtures thereof.

8. The composition of Claim 1 wherein the photoinitiator is selected from the groups consisting of:

present invention include, for example, 1-phenyl-2-hydroxy-2-methyl-1-propanone, oligo-2hydroxy-2-methyl-1-(4-[[1-methylvinyl]phenyl]-propanone), benzophenone, and 2-methyl-1-[4-(methylthio) phenyl]-2-(4-morpholino)-1-propanone; 1-hydroxycyclohexyl phenyl ketone, acetophenones such as (2, 2-dimethoxy-2-phenylacetophenone), 2,4,6-trimethyl benzophenone and other such benzophenone derivatives, phosphine oxide derivatives such as (phosphine oxide phenyl-bis [2,4,6-trimethyl benzoyl]), [bis (2,6-dimethoxybenzoyl) (2,4,4-trimethylpentyl) phosphine oxide] and the like as well as mixtures and derivatives thereof.

9. The composition of Claim 1 wherein the conductive pigment comprise carbon black pigment.

10. The composition of Claim 9 wherein the conductive pigment is a mixture comprising carbon black pigment.

11. The composition of Claim 10 wherein the conductive pigment further comprises a non-conductive pigment.

12. The composition of Claim 10 wherein the conductive pigment is a mixture of carbon black and a compound selected from the group consisting of antimony-doped tin oxide, nickel, graphite and mixtures thereof.

13. The composition of Claim 12 which further comprises:  
a conductivity enhancer.

14. The composition of Claim 13 wherein the conductivity enhancer is selected from the group consisting of:

supported – unsupported gold, platinum, silver, titanium, aluminum, copper, and mixtures thereof.

15. A method of priming and sealing a non-conductive plastic substrate, comprising:

spraying onto the substrate the composition of Claim 1.

16. The method of Claim 14 wherein the substrate is selected from the group consisting of SMC, reaction injection molding, reaction thermal molding, hand lay up, acrylonitrile-butadiene-styrene, thermoplastic olefin, polycarbonate, and hybrid molding and the like.

17. The method of Claim 16 wherein the substrate is SMC.

18. The method of Claim 17 wherein the SMC substrate is an automotive body panel.